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AN ANALYSIS OF LATE-MODEL COMMERCIAL AUTO-TRUCK THEFT IN
HARRIS COUNTY, TEXAS

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| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The objectives of this study were: (1) to determine if certain automobiles were reported as unrecovered, stolen vehicles more frequently than their existence in the population in Harris County Texas; (2) to determine if a monthly variation in the incidence of commercial auto theft existed; and (3) to develop a descriptive profile of commercial auto theft targets. Cont'd | | |

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ABSTRACT

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Findings-

- (1) The study indicates that there is a significant and strong correlation between all variables examined and the incidence of unrecovered, stolen passenger cars and trucks.
- (2) Trucks were reported as unrecovered, stolen vehicles in significantly greater frequencies than were passenger cars.
- (3) Year model 1976 vehicles were reported as unrecovered, stolen vehicles in significantly greater frequencies than were year model 1975 or 1977 vehicles.
- (4) General Motors manufactured passenger cars were found to be reported as unrecovered, stolen vehicles more frequently than vehicles of other manufacture.
- (5) Ford trucks were reported as unrecovered, stolen trucks more frequently than other makes of trucks.
- (6) Pontiac makes of passenger cars were reported as unrecovered, stolen vehicles more frequently than other makes of passenger cars relative to their existence in the population.
- (7) Specialty and intermediate-size cars were found to be reported as stolen, unrecovered vehicles more frequently than were other market classes of vehicles.
- (8) Passenger cars and trucks were reported as unrecovered, stolen vehicles in significantly greater frequencies during the months of September through December.

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AUTO-TRUCK THEFT IN HARRIS COUNTY, TEXAS

A Thesis

Presented to

the Faculty of the Institute of Contemporary Corrections
and the Behavioral Sciences

Sam Houston State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

Jimmie L. Burns

May, 1978

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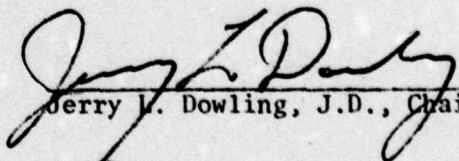
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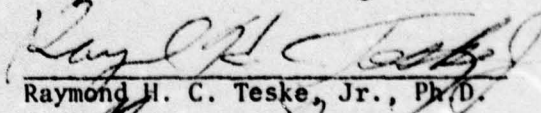
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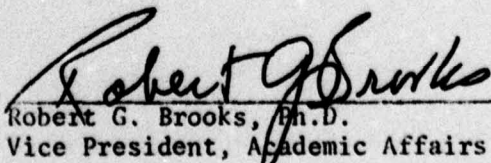
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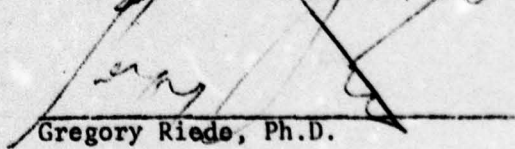
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ABSTRACT

Burns, Jimmie L., An Analysis of Late-Model Commercial Auto-Truck Theft in Harris County, Texas. Master of Arts (Institute of Contemporary Corrections and the Behavioral Sciences), May, 1978, Sam Houston State University, Huntsville, Texas.

Purpose

The objectives of this study were: (1) to determine if certain automobiles were reported as unrecovered, stolen, vehicles more frequently than their existence in the population in Harris County, Texas. on the basis of such variables as type of vehicle, year model of vehicle, manufacturer of vehicle, make of vehicle, and market class of vehicle; (2) to determine if a monthly variation in the incidence of unrecovered, stolen automobiles existed; and (3) to develop a descriptive profile of the passenger car and truck most likely to have been stolen by commercial auto thieves in Harris County, Texas.

Methods

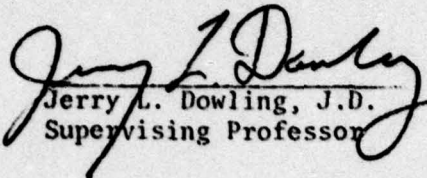
The methods used in this study were: (1) the collection of data on the characteristics of passenger cars and trucks reported as stolen and subsequently unrecovered from Harris County, Texas, from January 1, 1977, through December 31, 1977; (2) the matching of this information with the existence of such characteristics in the general population of vehicles in Harris County from which the sample was taken; (3) conducting a computer analysis of these data by the chi square formula to determine if certain vehicles are

reported as unrecovered, stolen vehicles more frequently than other vehicles; (4) conducting a computer analysis of the frequency of unrecovered, stolen vehicles by month of theft using chi square analysis; and (5) considering all results with a probability of .05 or less as significant.

Findings

1. The study indicates that there is a significant and strong correlation between all variables examined and the incidence of unrecovered, stolen passenger cars and trucks.
2. Trucks were reported as unrecovered, stolen vehicles in significantly greater frequencies than were passenger cars.
3. Year model 1976 vehicles were reported as unrecovered, stolen vehicles in significantly greater frequencies than were year model 1975 or 1977 vehicles.
4. General Motors manufactured passenger cars were found to be reported as unrecovered, stolen vehicles more frequently than vehicles of other manufacture.
5. Ford trucks were reported as unrecovered, stolen trucks more frequently than other makes of trucks.
6. Pontiac makes of passenger cars were reported as unrecovered, stolen vehicles more frequently than other makes of passenger cars relative to their existence in the population.
7. Specialty and intermediate-size cars were found to be reported as unrecovered, stolen vehicles more frequently than were other market classes of vehicles.

8. Passenger cars and trucks were reported as unrecovered, stolen vehicles in significantly greater frequencies during the months of September through December.


Jerry L. Dowling, J.D.
Supervising Professor

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This thesis could not have been written without the consideration and dedicated efforts of an exceptionally large group of individuals. Dr. Dowling was a constant source of inspiration and guidance in the preparation of this thesis. Dr. Raymond Teske and Dr. Gregory Riede were particularly helpful in the development and presentation of the data used in this study.

Wholehearted support was tendered by several organizations. Officials and employees of the Texas Department of Public Safety, the Southwestern Division of the National Auto Theft Bureau, and the Houston Automobile Dealers Association were of invaluable assistance in obtaining data for this study. Without the generous support of these individuals, this research project would not have been possible.

My most sincere gratitude is extended to my parents, Mr. and Mrs. Albert L. Burns, who have always encouraged my academic endeavors. Lastly, I wish to especially acknowledge the dedication of my wife, Patricia, who has given so much of her time and support to insure the completion of this thesis.

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CHAPTER I

INTRODUCTION

The automobile holds a unique place in American society. The automobile is many things to many people. For some the automobile is a status symbol, a means of transportation, an extension of the personality, a necessity in support of employment or a source of recreation; for the commercial auto thief, the automobile is a valuable object which can be illegally obtained and converted into cash or traded for drugs or other property.

According to one source (FBI Motor Vehicle Thefts Survey, 1974), auto theft as a crime has increased in a far greater proportion than the increase in population or the increased availability of vehicles in this country. Auto theft is a lucrative, illegal enterprise which promises to become more lucrative in the future. As the prices of new cars and parts increase, the demand for these items at lower prices will increase. The law of supply and demand dictates that auto theft will be a significant law enforcement problem for years to come.

Although the incidence of auto theft has long had a financial impact on an overwhelming majority of the public, intensive efforts to curb this crime have just recently been initiated. Efforts by manufacturers to improve the automobile anti-theft devices has had some impact on the incidence of auto theft. Studies designed to develop further knowledge of the variables related to auto theft as an offense have provided law enforcement officials with information

which can be used to make some general assumptions in formulating a proactive response to auto theft.

Auto Theft

Auto theft contributes significantly to the total volume of reported crime in this country. According to one source (Crime in the United States, 1976), 957,600 motor vehicles were reported stolen in 1976. The actual incidence of auto theft is probably consistent with the reported incidence of this crime. One author, with regard to auto theft, has stated the following:

Police are usually informed of this offense because of the value of automobiles, the fact that they are insured, and the fact that the owner may be held responsible for accidents committed in his vehicle by the thief [Glaser, 1974, p. 74].

Fairly accurate reporting of this offense has resulted in a more accurate assessment of this crime in comparison to other types of property offenses.

The incidence of auto theft has undergone some interesting changes in recent years. The advent of automobile anti-theft devices has had some impact on the incidence of auto theft. The automobile anti-theft devices have made the theft of an automobile for "joy-riding" more difficult. While the incidence of auto theft is not increasing in proportion to other property crimes, the rate of recovery of stolen vehicles has declined. The greater frequency of the incidence of motor vehicles being stolen and not recovered suggests that auto theft for personal gain is increasing.

Commercial Auto Theft

A number of law enforcement officials and writers have recognized the increase in auto theft for profit or economic gain. The fact that auto theft for profit is increasing can be noted in the writings of several authors (Ferretti, 1978; Hellman, 1971; Lechtzin, 1973; Smith, 1975; and Starnes, 1973). The situation suggested by these authors is that auto theft for economic gain is increasing and the sophistication and organization being employed by "professional" auto thieves makes auto theft a lucrative and low-risk crime for the offender.

Need for Study

Aspects of commercial auto-truck theft need to be researched to provide law enforcement officials with data which can be utilized to enhance the investigation of commercial auto theft. A profile which assists in defining vehicles which are stolen and subsequently unrecovered in a greater frequency than their existence in the general population would serve as a valuable law enforcement tool.

Nature of the Problem

Commercial auto theft is a crime which has increased significantly in recent years. Evidence of this situation is suggested in national statistics which reflect a leveling off in the incidence of auto theft; however, there is a declining rate of recovery for stolen vehicles. A Justice Department official has stated that:

Today substantially large numbers of vehicles are being stolen which are never recovered as compared to a value recovery rate of eighty-six percent of all stolen automobiles in 1967, only about fifty-nine percent of the value of all stolen automobiles was recovered in 1977 [Houston Post, March 17, 1978, p. 2C].

Commercial auto thieves are successfully employing a variety of sophisticated techniques to conceal and dispose of stolen automobiles and trucks. Further, there is evidence to suggest that the number of commercial auto theft rings is increasing.

Problem

At the present, law enforcement officials can only generalize about preferred targets of commercial auto thieves based on personal experience and observations. A greater understanding of the patterns and desirable targets of commercial auto thieves is needed.

Research Questions

There are a variety of factors which account for the selection of particular vehicles as the preferred targets of commercial auto thieves. One of the dominant factors is the existence of a popular demand for a certain kind of vehicle. The geography, climate, and culture of a specific region of the country often dictates what types of vehicles are preferred within that region.¹ Mr. Charley Evans, Assistant Manager of the Southwestern Division of the National Auto Theft Bureau, has stated the following:

Different regions have different auto theft problems in that the vehicles which are stolen most frequently are those vehicles which are popular in that area. Luxury cars are a favored auto theft target of auto thieves on the West Coast. In the Southwestern region, truck thefts are a significant problem [C. Evans, personal communication, March 30, 1978].

Just as the rate of auto theft varies from region to region, so does the type of vehicle which is stolen.

At the onset of this study, the intention was to survey the variations in the theft of vehicles by type. However, it became apparent that other variables such as the year model of the vehicle, the manufacturer of the vehicle, and model of the vehicle were important variables which should be analyzed to provide greater definition to the study. Data on the variables which were intended for study were not available for the types of vehicles classified as motorcycles and heavy equipment. Therefore, this study addressed the incidence of commercial auto theft for only the passenger car and truck types of vehicles.

Harris County was selected as the area to be studied for two reasons. First, Harris County is a large metropolitan area. Statistics in the one source (Crime in the United States, 1976) indicated that higher rates of motor vehicle theft are reported in heavily populated areas. Secondly, statistics from the Department of Public Safety reflected that Houston has, in terms of reported motor vehicle thefts, a total equivalent to the other nine major cities in Texas combined.

To develop a greater understanding of the patterns of commercial auto theft in Harris County, Texas, and formulate a

profile of unrecovered, stolen automobiles, it was necessary to ascertain if there was a relationship between certain variables and the incidence of unrecovered, stolen automobiles. The variables selected for analysis to determine the existence of a relationship between the characteristic and the incidence of unrecovered, stolen vehicles were the following: type of vehicle, year model of vehicle, manufacturer of vehicle, make of vehicle, market class of vehicle, and month of theft.

Research questions at the onset of the study were as follows:

1. Is there a relationship between the type of vehicle and the incidence of unrecovered, stolen vehicles?
2. Is there a relationship between year model of the vehicle and the incidence of unrecovered, stolen vehicles?
3. Is there a relationship between the manufacturer of the vehicle and the incidence of unrecovered, stolen vehicles?
4. Is there a relationship between the make of vehicle and the incidence of unrecovered, stolen vehicles?
5. Is there a relationship between the market class of vehicles and the incidence of unrecovered, stolen vehicles?
6. Is there a relationship between the month of theft and the incidence of unrecovered, stolen vehicles?

Limitations of the Study

The study only addressed late-model vehicles of passenger car and truck types for year models 1975, 1976, and 1977.

Expansion of the year models and types of vehicles analyzed would have increased the generalizability of the study.

Further, the population does not include those vehicles which were purchased and registered in Harris County and have been subsequently salvaged or removed from the area. Likewise, the population does not include those 1975, 1976, and 1977 year model vehicles which entered the population in a transient status, such as commuter and tourist traffic. Lastly, the sample of unrecovered stolen vehicles does not include those vehicles stolen in commercial auto theft operations which were discovered by police.

Definitions

Auto Theft. For statistics gathering purposes, Texas uses the following definition of auto theft:

the unlawful taking or stealing of an automobile including attempts. This definition includes joyriding. However, it excludes taking for temporary use those persons having lawful access to the vehicle [Crime in the United States, 1976, p. 34].

Commercial Auto Theft. For the purpose of this study, commercial auto theft is defined as the theft of a motor vehicle for the purpose of profit or economic gain. This definition excludes the theft of an automobile for any purpose other than disposition of the vehicle itself for a monetary gain. Theft of a vehicle for disposition of the vehicle by resale or stripping a stolen vehicle for sale of the parts constitutes commercial auto theft.

Manufacturer. Manufacturer is defined as the corporate

producer of the motor vehicle. For the purpose of this study, the manufacturers are designated as General Motors Corporation, Ford Motor Company, Chrysler Corporation, American Motors Corporation, other domestic manufacturers, and foreign manufacturers.

Make. Make is defined as the design for a particular motor vehicle produced by a division under the manufacturer. For example, Chevrolet would be the make of the vehicle and the manufacturer would be General Motors, Inc.

Market Class. Market class is a categorical designation assigned to a particular model of automobile on the basis of classification by a leading automobile trade paper, Automotive News.

Year Model. Year model is defined as the year designation assigned to automobiles on the basis production for sale as a new vehicle. The year the vehicle is produced for sale is not associated with the calendar year.

Model. Model is a categorical designation assigned to a vehicle on the basis of design of pattern. For example, in the case of a Chevrolet Impala, General Motors would be the manufacturer, Chevrolet the make, and the model would be Impala.

Vehicle Identification Number. The vehicle identification number, for the purpose of this study, is defined as a numbering and lettering system which describes the vehicle for identification purposes. The vehicle identification number affixed to the vehicle can be decoded to provide a true description of the vehicle to which it was assigned.

CHAPTER II

REVIEW OF THE LITERATURE

A review of the literature was conducted to differentiate elements of auto theft and determine research efforts concordant with the objectives of the study. The review of the literature will be divided into two parts. The first part will address the traditional approach that has been used in studying the crime of auto theft. The review of the traditional approach of studying the offender will concern the research that has been conducted to ascertain knowledge of offender characteristics. The second part of the review of the literature will address commercial auto theft. This part of the review will be directed towards illucidating the nature and patterns of commercial auto theft. Research which focused on offense characteristics and types of motor vehicles subject to auto theft will be cited in the second part of the review.

Auto Theft Offender Characteristics

The study of auto theft offenders has been limited to those subjects who have been apprehended. The traditional approach to studying the crime of auto theft has been a focus of the auto thief. The characteristics of the individual offender have been considered to be of prime importance in the past. Researchers have sought to identify a number of social, economic, and personal variables related to auto theft offenders as a means of understanding the motivation, goals, and personalities of auto thieves. The findings and conclusions

of some of the more notable researchers who directed projects which addressed auto theft offenders are brought forth to indicate the direction of past research regarding this crime.

Many of the major research efforts aimed at studying characteristics of the auto thief were accomplished in the 1940's and 1950's. The researchers studied variables such as age, race, and socioeconomic status as factors related to these offenders. Perhaps, the lack of later research can be attributed to the acceptance of the notion that auto theft is a juvenile crime problem that has been adequately investigated.

One variable upon which researchers consistently agreed in studying the auto theft offender was age (see the works of Selling, 1933; Berg, 1943; and Wattenberg & Balistrieri, 1953). Savitz (1959) stated that "It is well established that most auto thefts are committed by youthful offenders, usually under twenty years of age"[p. 133]. Indeed, there is ample evidence to support Savitz's claim.

One of the first authors to write extensively on auto theft concluded the following:

Most of the automobiles are taken by older boys, a year or two above the age fixed for technical juvenile delinquency in most jurisdictions; they are taken for excitement, to 'show off', and for 'joy-rides'. And, as we found, they are quickly abandoned, recovered, and returned to their owners [Hall, 1952, p. 250].

Hall's observations regarding the age of the offender and the purpose of theft are supported by statistics. For example, it was noted in Crime in the United States, 1976 that "Police reports disclosed that

of all persons formally processed for motor vehicle theft in 1976, 64 percent were referred to juvenile court jurisdictions" [p. 33]. The fact that juveniles account for the majority of auto thefts led researchers to focus on youthful offenders in examining variables related to auto theft.

Wattenberg and Balistreri (1953) examined auto theft among juveniles in Detroit, Michigan. The researchers examined the records of all boys between the ages of ten and sixteen involved with the police in 1948, and compared 230 white auto thieves with 2,544 white perpetrators of other delinquent acts based upon a fifty-item measuring instrument. Wattenberg and Balistreri found that fourteen items were significant at the .05 level in differentiating auto thieves from other delinquents. With respect to their research, these researchers concluded the following:

- (1) Auto thieves more frequently come from above average homes and less frequently from slums.
- (2) They more usually come from racially homogeneous areas.
- (3) They more frequently live in single-family homes.
- (4) Their homes need less repair.
- (5) They more usually have only one working parent.
- (6) Auto thieves are older boys, rarely below fourteen.
- (7) They have better physical development than other delinquents.
- (8) They have completed sex development.
- (9) They are in junior high school grades in school.
- (10) They more often work.
- (11) The individual car thief socializes better than other delinquents with his peer group and is less likely to be a "lone wolf."
- (12) They are more often classified as responsive by the police.
- (13) Car thieves are more likely to receive stern treatment or have an official complaint filed.
- (14) Father-son recreation is more frequently classified as "occasional" rather than regular or seldom for the auto thief [Wattenbert & Balistreri, 1953, p. 577].

Wattenberg and Balistrieri's research encompassed a variety of variables associated with the juvenile auto theft offender. Further, their research was instrumental in initiating other research projects designed to develop greater knowledge of the auto thief.

Other studies supported Wattenberg and Balistrieri's thesis that auto theft is predominantly a middle-class juvenile delinquency problem (see Parsons, 1949; Cohen, 1955; and Schepses, 1961). However, one group of researchers (McCaghy, Giordano, & Henson, 1977) cautioned that the proliferation of two and three-car families among the middle-class may reduce the inclination of middle-class youth to steal automobiles. McCaghy, et al. (1977), in studying auto theft offenders in Toledo, concluded that " ... lower-classes evidently account for more theft than sociological literature leads us to believe" [p. 374]. Consequently, lower-class and minority youth may become more heavily involved in auto theft in the future.

Statistics from one source (Houston Police Department Annual Report, 1970) indicated that among individuals under eighteen years of age apprehended for auto theft in Houston in 1970, 566 were white and 252 were black. Although the statistics support many studies which indicate that white youth are the predominant group involved in auto theft, it was apparent that there was a greater degree of black youth involvement in auto theft in Houston than in other areas which have been studied. With regard to race, Savitz (1959) stated that "there is comparatively little data in this area and what there

is, is conflicting" (see Berg, 1943; Wattenberg & Balistrieri, 1953; and Gibbons, 1977). These authors have suggested that social conditions such as a greater suspicion of blacks and other minorities in certain circumstances may account for the smaller proportions of minorities being arrested for auto theft.

Most of the studies of auto theft offender characteristics have indicated that auto thieves are predominantly white juveniles or young adults of a middle-class background who steal motor vehicles for "joy riding." Arrest statistics tend to support these conclusions. However, one author cautioned:

... further investigations are needed that test specific hypotheses about automobile thieves, through the use of first hand data gathering and measures specifically relevant to the dimensions of personality, family life, and so on, identified in theoretical claims [Gibbons, 1977, p. 316].

Obviously, further research on auto theft offender characteristics is necessary to clarify misconceptions about the auto thief. Additionally, a greater understanding of the multifaceted nature of auto theft as an offense is necessary to fully examine this criminal activity.

Typology in Auto Theft

A study of typology in auto theft generally divides auto thieves into five categories based upon the motivation for theft. Some authors (Gibbons, 1977 and Glaser, 1974) have generally divided auto thieves into two categories: the white, middle-class joyrider and the "professional." One group of researchers have

developed a typology which is inclusive of the several types of auto thieves that law enforcement officials have recognized during the course of their experiences. The typology developed by McCaghy et al. (1977) consists of types based upon specific motivation and they are as follows: joyriding, short-term transportation, profit, and commission of another crime. Although these motivations are fairly apparent in practice, it appears that some motivations have often been overlooked in the past by researchers.

Information on personal and socioeconomic variables of the "professional" auto thief are sparse due to the fact that most of the research has been directed towards juvenile auto thieves. It is difficult to differentiate the methods of theft by "joyriders" as opposed to commercial auto thieves. If the apprehension takes place during the commission of the auto theft, it is extremely difficult to determine the purpose of the theft. Hall (1952) has suggested that recovery of the stolen vehicle within a short period of time within or near the jurisdiction in which the theft occurred indicates a joyriding motive. Finally, the sophistication and tactics of the "professional" thief makes him less vulnerable to apprehension and conviction.

Factors in Distinguishing Motivation for Auto Theft

The number of auto theft offenses cleared by arrest has traditionally been low in comparison to the proportion of thefts committed. Explanations as to why the percentage of arrests in

relation to other thefts are small have been illucidated by one writer in the following statement:

First, the enormously large recovery of stolen automobiles results from the abandonment of the vehicle and not from the arrest of the offender. Second, the mobility of the automobile and the fact that it serves the offender as a means of escape enhance the difficulty of capture. Third, the conditions in metropolitan centers ... where large numbers of automobiles and crowds are found make it extremely difficult to detect automobile thieves [Hall, 1952, p. 265].

Hall's analysis of factors which detract from the apprehension of auto thieves is applicable to the present-day situation.

Berg (1943) has stated that

... of the car thieves who have been apprehended and imprisoned, all but about five percent were arrested when actually driving the stolen car or, at least in possession of the intact machine [p. 392].

The low percentage of arrests for the proportion of auto thefts has further complicated the determination of the motivation for the theft.

The recovery of stolen automobiles has been assumed to be an indicator of the motivation for theft. Automobiles which are recovered shortly after the time of theft in good condition were presumably stolen for temporary transportation or "joyriding" purposes (see Hall, 1952; Gibbons, 1977; and McCaghy, et al. 1977). Hall (1952) found that more than 90 percent of the stolen automobiles were recovered; however, he was concerned with those automobiles which were not recovered and asked the following question: "Does the ten percent which is not recovered represent the same type of criminal behavior found among the majority?" Hall concluded that

the basic motivations for auto theft were excitement, or "joy-riding," and profit.

The major efforts of researchers studying auto theft have been focused on the "joyrider." The studies reflect a disproportionate involvement of white, middle-class juveniles, yet one group (1977) has concluded that:

... while a portion of auto thieves are white juveniles from better neighborhoods and socioeconomic backgrounds, they do not account for a disproportionate number of juvenile car thieves, as the Wattenberg and Balistrieri findings indicate [McCaghy, et al. 1977, p. 383].

Indications are that sociological assumptions about auto theft being a favored-group delinquency are being questioned.

Commercial Auto Theft

Auto theft incidents have stabilized recently, yet arrest rates and recovery of automobiles have been decreasing (see Crime in the United States, 1976). This situation should lead one to conclude that auto theft for profit is increasing. This condition further suggests that greater efforts should be directed towards studying the patterns and strategies employed by commercial auto thieves. This approach would be beneficial in that the dollar loss suffered by the public could be reduced, as well as the overall volume of auto theft.

In developing a proactive response to commercial auto theft, it is necessary to review the patterns, operation, and strategy of those who steal and dispose of automobiles for profit. Most law enforcement officials agree that the commercial auto thief is

primarily a "professional" thief. The "professional" thief is one whose occupation and means of livelihood is stealing.² Professor Inciardi (1975) clearly characterizes the "professional thief;" (see, for example, his chapter on "Criminal Types Marginal to the Profession"). Although the commercial auto thief may specialize in auto theft, he will generally steal any type of property which he can rapidly convert into cash.

Specialization in auto theft is a highly lucrative venture for the professional thief. Hellman (1971) found that the experienced thief gets \$150-200 per vehicle delivered to accomplices, and concluded that the professional in New York works on a basis of stealing ten to twelve cars per week. Little is known about the commercial auto thief, but some observations have been made regarding his patterns of theft.

Some generalities about commercial auto thieves have been formulated by auto theft experts. One expert (Benson, 1969) generalized that "commercial auto thieves are creatures of habit and generally follow patterns as to the make, model, and type of vehicle they prefer to handle" [p. 1]. Benson believes that commercial auto thieves display an affinity for certain types of vehicles for a variety of reasons; for example, confidence in circumventing a particular type of anti-theft device, adeptness in changing or eliminating vehicle identification numbers on certain vehicles, or a preference for vehicles which are less conspicuous and more salable. Employment of a greater degree of sophistication enhances the commercial thief's chances of escaping apprehension.

Concurrently, McCaghy, et al. (1977) have noted that auto thieves who steal automobiles for profit include a wide variety of individuals of differing degrees of sophistication. While some commercial auto thieves are highly organized and dispose of stolen vehicles in a variety of ways, others are "amateurs" who steal and strip vehicles for readily salable parts. Data from the FBI Motor Vehicle Theft Survey reflected that 38 percent of the stolen passenger cars which were reported recovered in metropolitan areas had been stripped. Vehicles stolen by less professional commercial auto thieves are more likely to be recovered with some of the parts missing, whereas, vehicles stolen by highly organized groups are less likely to be recovered.

Disposition of Stolen Motor Vehicles

• Automobiles stolen by commercial thieves are disposed of in the following three ways:

1. The stolen vehicle can be disguised and resold intact in this country.
2. The vehicle can be "chopped" or "stripped," in which case the parts are sold.
3. The vehicle can be disguised and shipped to another country for resale.

Disguising stolen vehicles involves changing the identification number of the vehicle and/or obtaining spurious documentation to conceal the identity of the stolen vehicle. Knowledge about the eventual disposition of automobiles stolen by commercial auto thieves

is sketchy. Law enforcement officials have uncovered various auto-truck theft operations which support the types of dispositions which have been generally recognized (see Hellman, 1971). Mr. C. C. Benson, Southwestern Regional Manager of the National Auto Theft Bureau, was quoted in one publication (1975 Annual Report of the Texas Organized Crime Prevention Council, 1976) as saying that "one out of every four cars stolen in the United States eventually ends up in Mexico to be sold for narcotics" [p. 44]. Mr. Benson's appraisal has been supported by a recent investigation. A newspaper article revealed the following account of two California Highway Patrol officers' investigation of stolen cars in Mexico:

Sewell and Gomez ... noted identification numbers of 100 vehicles in Cholula, Chetumal, Puebla, and Mexico City. Computer checks revealed that 25 had been reported stolen in the United States, including Texas, California, Michigan, Tennessee, and New Mexico. In Chetumal, 40 percent of the vehicles they checked had been stolen north of the border [Houston Chronicle, April 7, 1978, p. 3].

The close proximity of the Mexican border has undoubtedly contributed to the disposition of automobiles which have been stolen in Texas.

Research on Variables Related to the Stolen Motor Vehicles

Although it is not possible to gather accurate data with regard to the disposition of unrecovered stolen vehicles, it is possible to ascertain a descriptive profile of automobiles and trucks which have been stolen. A nationwide survey was conducted during September and October of 1974 by the Uniform Crime Reporting Section

of the Federal Bureau of Investigation and the Canadian Dominion Bureau of Statistics to gather data relevant to motor vehicle theft (see Appendix D for a descriptive account of stolen motor vehicles).

Recovery statistics during the two-month period of the study yielded information relevant to the purpose of theft and disposition of stolen vehicles. The study indicated that 62.4 percent of the stolen vehicles were recovered within forty-eight hours of the time of theft. Analysis of location of recovery revealed that 75 percent of the stolen vehicles were recovered within the same jurisdiction from which the vehicle was stolen. These facts suggest that "joyriding" was a major purpose of the theft in these cases. The recovery by type of vehicle closely coincided with the percentage by type of vehicle stolen, in that 88 percent of the recovered stolen vehicles were passenger cars, 6 percent were motorcycles, and the remaining 1 percent were other types of vehicles.

The survey was significant in that it concentrated on auto theft from an operational aspect of the crime. Factors such as the type and year of stolen motor vehicles, time and place of theft, and purpose of theft were considered and provided illumination as to the circumstances and conditions which invite auto theft. On the other hand, the survey did not evaluate regional or local variations with regard to the variables considered. More importantly, perhaps, the survey did not differentiate between factors relevant to auto theft for profit and those of joyriding.

Research on Theft Potential of Specific Automobiles

Relatively little research has been done concerning the theft potential of specific models of automobiles. However, it was found that one insurance company has conducted a study which addressed theft potential of specific models of automobiles, in part. An article in a weekly trade newspaper revealed that Allstate Insurance Company ties car insurance rates to claims experience. The rates are based on experienced losses for 1974 to 1976 passenger cars. The trade newspaper reported that

... insurance rate reductions and increases are based for the first time on specific car model loss experience reflecting the damageability, repairability, and theft potential are in force with Allstate Insurance Company [Automotive News, November 15, 1976, p. 3].

Vehicles which are to be rated lower include a variety of full-size and compact cars. Likewise, the vehicles to be rated higher encompass luxury vehicles such as Lincolns, Thunderbirds, and Cadillacs and compact cars such as Volkswagens, Datsuns, and other foreign-made cars. This study is important in that it recognized the variability of theft potential based upon the characteristic of model of the vehicle. Unfortunately, one cannot determine extent of the relationship between the auto theft rate and increasing repair costs.

A number of generalizations about the theft potential of particular models of automobiles was noted in the literature (see Ferretti, 1978; Lechtzin, 1973; and Benson, 1969). These authors generally refer to the theft potential of expensive sports and

luxury cars such as Cadillacs, Lincolns, Mercedes, and Porsches. Such observations may serve to conceal the nature of auto theft with regard to the theft potential of certain vehicles when the emphasis on susceptibility to theft is generally ascribed to only expensive sports or luxury models of passenger cars.

The Impact of Automobile Anti-Theft Devices

The federal government has taken action to limit the theft rate for all models of new cars. In 1970, the Department of Transportation established mandatory federal regulations (49 CFR 571.114) for anti-theft devices on new cars sold in this country. This action was taken in response to the increasing incidence of auto theft. One author (Lechtzin, 1973) has stated that "the anti-theft devices added to new cars in the past few years have helped keep the teenaged 'joyrider' out of auto theft" [p. 23]. On the other hand, Paul Gilliland of the National Auto Theft Bureau was quoted in a newspaper article as saying:

There is plenty of evidence that anti-theft devices have discouraged joyriders and other casual car thieves but the professional car thief seldom takes very long to master the most sophisticated security devices Detroit can come up with. The three-way lock will stop most joyriders in their tracks, but a good professional thief can circumvent one in less than three minutes [Knoxville News Sentinel, September 2, 1973, p. C-1].

Lechtzin (1973) noted that Doug Paul, manager of vehicle regulation at Ford Motor Company, has stated that "What we're really striving for is a deterrent. The longer a thief has to work to steal the car,

the more possibility he could be caught" [p. 23]. There is no doubt that auto anti-theft devices have had a substantial impact on auto thefts by "joyriders;" however, the effectiveness of anti-theft devices as a deterrence for commercial auto thieves is questionable. Statistics from the FBI Motor Vehicle Theft Survey indicated that 50 percent of the vehicles stolen were 1968 model or older vehicles. The high rate of theft of these vehicles may result from a lack of anti-theft devices on older model vehicles. Further, the anti-theft device regulations pertain only to passenger cars. Research by the National Institute of Law Enforcement and Criminal Justice (1975) indicated that anti-theft devices for motorcycles and light trucks are relatively unsophisticated. The lower incidence of truck thefts on a national level may have influenced the lack of regulation of anti-theft devices for trucks.

Manufacturers have complied with the Department of Transportation requirements in Motor Vehicle Safety Standard Number 114 (49 CFR 571.114) with a variety of locking system designs. The effectiveness of these anti-theft devices varies from manufacturer to manufacturer (see Appendix C for research findings on the quality of manufacturer auto anti-theft devices).

Summary

The vast majority of research which has been done on auto theft concerns juveniles who steal automobiles for the purpose of "joyriding." Relatively little research has been done on the

commercial auto thief who steals automobiles for profit. Even less research has been conducted to describe characteristics of motor vehicles subject to theft by commercial auto thieves.

The sophisticated nature of commercial auto theft rings makes enforcement and apprehension of ring members extremely difficult for law enforcement officials. The Texas Department of Public Safety estimated that 263 organized motor vehicle theft rings composed of two or more persons are located in Texas (1975 Annual Report of the Texas Organized Crime Prevention Council, 1976). The ability of commercial auto theft rings to rapidly dismantle or transport stolen vehicles to another state or country only intensifies the difficulty.

The sheer number of automobiles in this country also contributes to law enforcement problems regarding auto theft. The police officer on patrol encounters a vast array of motor vehicles. Detection of stolen automobiles in highly congested areas has been a major investigative problem for the police officer. Detection of the auto thief is also made more difficult because it is difficult to distinguish the innocent activity from the unlawful activity. In either case, the activity appears to be very similar if observed only casually.

There is a need to understand what kinds of vehicles are subject to theft by commercial auto thieves. The observation of unusual circumstances combined with the knowledge of a statistical profile of vehicles which are reported as stolen, unrecovered

vehicles in significantly greater frequencies than their existence in the population may enhance the detection and apprehension of commercial auto thieves.

CHAPTER III

METHODOLOGY

Population

The study consisted of a population of 541,224 automobiles and trucks of 1975, 1976, and 1977 year model vehicles which were purchased and registered as new vehicles in Harris County, Texas, between January 1, 1975 and December 31, 1977.

The passenger car population of 413,254 vehicles included both domestic and foreign cars. However, foreign cars were not included in the analysis of manufacturer and make categories due to the variety of foreign car manufacturers and makes.

The truck population which consisted of 127,970 vehicles included foreign and domestic trucks. Specific makes of trucks in the population are specified.

The data on the auto-truck population of Harris County, Texas, were developed from registration information. This information was obtained by tabulating the data on the variables of type, year, manufacturer, make, and market class of the vehicle population from annual statistical reports published in The Daily Facts Automotive Report. This publication provided a summary of new passenger cars and trucks purchased in 1975, 1976, and 1977 and registered in Harris County. Copies of the annual statistical report were obtained from the Houston Automobile Dealers Association. Factors such as accident involvement and subsequent salvaging and

transient vehicle traffic were not taken into consideration. Therefore, the sample of the study is from a population of late-model passenger cars and trucks located in Harris County.

Sample

In order to obtain data on commercial auto-truck thefts, automobiles and trucks stolen and unrecovered over the period of one calendar year were used in this study. The sample of unrecovered stolen passenger cars and trucks consisted of all 1975, 1976, and 1977 passenger cars and trucks which were reported stolen and were not recovered during the period January 1, 1977 through December 31, 1977. The unrecovered stolen vehicle sample reflected only those passenger cars and trucks which had been stolen in calendar year 1977 and not recovered as of February 24, 1978.

The sample consisted of 1,143 vehicles of foreign and domestic manufacture. All of the vehicles were reported stolen from police jurisdictions within the geographical confines of Harris County. Passenger cars represented 508 vehicles in the sample and trucks accounted for 635 vehicles in the sample. Foreign trucks were not included in the unrecovered stolen sample, as only one incident of this type was reported.

Assumptions

In conducting the research, two assumptions were made. First, the stolen and unrecovered vehicle population that was used

was considered to be those vehicles which were stolen by commercial auto thieves. This assumption was based on the fact that most stolen vehicles which are stolen for some purpose other than economic profit, for example, "joyriding," are recovered within forty-eight hours. One report (Motor Vehicle Thefts) indicated that an FBI uniform crime reporting survey revealed that "62.4 percent of the stolen vehicles recovered were located within forty-eight hours of the time of theft" [p. 10]. For the purposes of this study, motor vehicles which were not recovered within a minimum of one and one-half months after they were missing were assumed to have been stolen by commercial auto thieves.

The second assumption was that the sample reflected the population of automobiles and trucks in Harris County which cannot be tabulated for a given period of time, since it is, in fact, in constant flux. Therefore, it was assumed that the vehicles which were purchased and registered as new vehicles in Harris County in 1975, 1976, and 1977 are still located in Harris County.

Variables

Independent Variables

The independent variables in this study were the following:

1. Type of vehicle--Passenger car or truck. Stolen vehicle reports reflect this variable 100 percent of the time.
2. Manufacturer of Vehicle--General Motors, Ford Motor Company, Chrysler Corporation, American Motors, other domestic

manufacturers, and foreign-made vehicles.

3. Year of Vehicle--1975, 1976, and 1977. Stolen vehicle reports reflected this data in 100 percent of the cases.

4. Make of Vehicle--Chevrolet, Ford, Oldsmobile, Pontiac, Buick, Mercury, Cadillac, Dodge, Plymouth, Lincoln, Chrysler, American, and other makes of domestic manufacture.

5. Market Class of the Vehicle--Compact, Intermediate, Standard, Specialty, and Luxury. All stolen and unrecovered vehicles were placed in a market class by model based upon 1977 market class designations.

6. Date of Theft--January through December, 1977.

Dependent Variables

The dependent variables, unrecovered, stolen automobiles and trucks are defined as those vehicles which are not recovered within a minimum of one and one-half months after they have been reported stolen.

Procedure

The procedures used in conducting the study involved the following steps:

Step 1: Securing permission from the Texas Department of Public Safety to review the active stolen vehicle file recorded in the Texas Crime Information Center (TCIC). A copy of the active stolen vehicle file for the period January 1, 1977 to February 14,

1978 was obtained for initial analysis.

Step 2: A magnetic tape was obtained from the Texas Department of Public Safety which provided a print-out capability for all stolen, unrecovered vehicles for the calendar year 1977 for the purpose of computer analysis.

Step 3: A list of factors which were thought to have a relationship to stolen, unrecovered vehicles was compiled from non-structured interviews with an auto theft investigator in the Motor Vehicle Theft Services Division of the Texas Department of Public Safety and the Assistant Manager of the Southwestern Division of the National Auto Theft Bureau. These individuals were asked to give their opinion on variables they thought were related to the incidence of commercial auto theft (see Appendixes A and B for a record of the interview).

Step 4: A chi-square analysis was conducted on the variables of type, manufacturer, model, year, market class, and date of theft of stolen, unrecovered automobiles and trucks in comparison to the frequency of such variables in the sample to determine significance among variables. It was decided that the relationship between the independent and dependent variables would be tested at the .05 level of significance.

CHAPTER IV

DATA ANALYSIS

This study was conducted for the purpose of examining the extent of commercial auto-truck theft in Harris County, Texas. It was also the purpose of this study to determine if certain passenger cars and trucks are stolen and unrecovered in a greater frequency than their existence in the population. This study addressed only passenger cars and trucks of year models 1975, 1976, and 1977 which were purchased and registered as new vehicles in Harris County. To obtain a greater perspective of the proportional aspect of the study, Table 1 provides information on total passenger car and truck registrations in Harris County for 1975, 1976, and 1977. A total of 1,143 1975, 1976, and 1977 passenger cars and trucks which were reported stolen from January 1, 1977 to December 31, 1977 and not recovered as of February 24, 1978 were examined.

TABLE 1

Frequency Distribution of Total Passenger Cars and Trucks
in Harris County by Registration Counts

| Year | Passenger Cars | Trucks |
|------|----------------|---------|
| 1975 | 1,075,996 | 241,578 |
| 1976 | 1,149,362 | 274,003 |
| 1977 | 1,200,531 | 308,433 |

Source: Compiled from Registration Statistics available in the Accounting Division of the Harris County Tax Assessor's Office.

By the use of frequency distributions and chi square analysis, stolen, unrecovered 1975, 1976 and 1977 passenger cars and trucks were compared with the population sample to examine the variables of type of vehicle, year of vehicle, manufacturers of vehicle, and date of theft. Further, domestic passenger cars were examined for the additional variables of model and market class. With the exception of the variables of model and market class, passenger cars and trucks were analyzed separately and as an aggregate to obtain a more extensive perspective of the impact of the variables when a comparison is made between passenger cars and trucks.

Type of Vehicle

The first independent variable that was examined was the variable of type of vehicle. Table 2 reflects that of the 1,143 unrecovered stolen vehicles which were examined, 508 were passenger cars and 635 were trucks. The stolen, unrecovered vehicles by type are compared with a total of 113,254 passenger cars and 127,970 trucks in the population from which the sample was drawn.

Computation by means of chi square analysis indicated that there is a significant relationship ($P < .01$) between the type of vehicle and the incidence of unrecovered stolen passenger cars and trucks. The data reflected that trucks are stolen, and subsequently unrecovered, in a far greater frequency than are passenger cars.

There appear to be several explanations to account for the

TABLE 2
Frequency Distribution of Disposition Status
by Type of Vehicle

| Disposition Status | TYPE OF VEHICLE | |
|------------------------|-----------------|---------|
| | Passenger Car | Truck |
| Not stolen | 412,746 | 127,335 |
| Stolen and unrecovered | 508 | 635 |

N = 541,224

$\chi^2 = 644.3$ with 1 d.f. significant at $P < .01$

greater stolen, unrecovered rates for trucks as opposed to passenger cars. First, trucks have a greater load-hauling capability and this type of all-purpose vehicle would be in demand in foreign countries as a passenger vehicle and a load-hauling vehicle. The close proximity to Mexico and other South American countries facilitates the transportation of such vehicles to these countries. Further, a major seaport in Harris County increases the likelihood of shipping trucks to foreign countries where they are in demand. Lax controls along the Mexican border in checking for stolen vehicles entering the country may contribute to the decrease in the recovery rates of stolen vehicles.

A second explanation for the greater frequency of stolen, unrecovered trucks concerns their value to commercial enterprises in this country. Many businesses have a requirement for load-carrying

vehicles. Trucks may be kept on farms, ranches, or on industrial sites where they are relatively isolated and observation of the vehicles is infrequent, thus reducing the opportunity for detection of stolen trucks.

Finally, the social and cultural style of life in Texas may account for the greater frequency of stolen, unrecovered truck thefts in Harris County. According to an article in the Houston Post, April 2, 1978, adults are viewing trucks as a new status symbol. Light trucks are very much in demand. The pick-up truck was America's best selling vehicle in 1977. Although Texas possesses great metropolitan areas, historically, and to some extent, presently, Texas has a country and western influence. Trucks are very popular in Harris County and more than likely exceed the truck populations in counties of comparable size and populations in other regions of the country.

Year of Vehicle

Passenger Cars and Trucks

Another independent variable which was thought to be related to the incidence of stolen, unrecovered passenger cars and trucks is the year model of the vehicle. Table 3 indicates the total number of passenger cars and trucks which were purchased and registered in Harris County in 1975, 1976, and 1977 and the year model of those vehicles which were stolen and unrecovered in calendar year 1977.

Computation by use of the chi square formula indicated

TABLE 3

Frequency Distribution of Disposition Status of
Passenger Cars and Trucks by Year Model of Vehicle

| Disposition Status | YEAR OF VEHICLES | | |
|------------------------|------------------|---------|---------|
| | 1975 | 1976 | 1977 |
| Not stolen | 154,429 | 181,081 | 204,571 |
| Stolen and unrecovered | 265 | 461 | 417 |

N = 541,224

$\chi^2 = 28.0$ with 2 d.f. significant at $P < .01$

that there is a relationship ($P < .01$) between the year model of the vehicle and the incidence of stolen, unrecovered vehicles.

It was found that among 1975, 1976, and 1977 vehicles, 1976 year model vehicles are stolen in significantly greater frequencies than are 1975 or 1977 year model vehicles.

The explanation of the prevalence of stolen, unrecovered vehicle theft rates for 1976 year model vehicles as opposed to 1975 or 1977 year model vehicles was assessed in three ways. The factor of availability of the vehicle is of prime importance. Obviously, the longer a late-model vehicle is in an environment, the greater the probability is that it will be stolen. Following this logic, it would appear that 1975 year model vehicles and older model vehicles have a greater potential for being stolen. In fact, upon analysis, it was found that 1975 year model vehicles indeed were

stolen in a significantly greater frequency than were 1977 year model vehicles. However, it should be noted at this point that the relative value of late-model vehicles decreases rapidly; therefore, the commercial auto thief is interested in those vehicles which have a high dollar value and are in reasonably good condition to facilitate a rapid disposition once the vehicle has been stolen.

It was found that 1977 year model vehicles were not stolen and unrecovered in greater frequencies than expected, when compared to their existence in the population. Although, it would appear logical to assume that new vehicle owners are likely to be more protective of a newly acquired and expensive item such as an automobile; the goal of the commercial auto thief in stealing vehicles which have a higher resale value may operate to overcome the new car owner's protectiveness. It is suggested that 1976 year model vehicles are not typically afforded the security consciousness or care that is provided by new car owners.

Passenger Cars

To gain a greater perspective on the impact of the year model of the vehicle, it was felt that stolen, unrecovered passenger cars and trucks should be analyzed separately. The proportional disparity in type of vehicle which is stolen and unrecovered suggested that there may be significant differences with regard to the variables to be analyzed. Table 4 provides data on the year model of passenger cars which were reported as unrecovered stolen

vehicles in 1977 in comparison to the population by year model of vehicles.

TABLE 4

Frequency Distribution of Disposition Status of Passenger Cars by Year Model of the Vehicles

| Disposition Status | YEAR MODEL OF PASSENGER CARS | | |
|------------------------|------------------------------|---------|---------|
| | 1975 | 1976 | 1977 |
| Not stolen | 121,119 | 137,476 | 154,151 |
| Stolen and unrecovered | 146 | 198 | 164 |

N = 413,254

$\chi^2 = 8.4$ with 2 d.f. $P < .02$

Computation by chi square analysis indicated that there was a relationship ($P < .02$) between the year model of the passenger car and the incidence of stolen, unrecovered automobiles. It was found that 1976 year model passenger cars are reported as unrecovered stolen vehicles in significantly greater frequencies than are 1975 or 1977 year model passenger cars. Further, it was found that 1975 year model passenger cars were reported as unrecovered stolen vehicles more frequently than expected when compared to 1977 year model passenger cars.

The rationale for explaining the greater frequency of theft and unrecovery of 1976 year model passenger cars as opposed to year model 1975 and 1977 vehicles is similar to the explanation offered for year model of vehicles in general. The availability of the

passenger car, its value, and the degree of security that is afforded the passenger car are of prime importance. It was found that 1977 year model passenger cars were stolen, and subsequently unrecovered, for significantly lesser degrees than expected.

Trucks

The year model of stolen, unrecovered trucks was analyzed separately to determine if the statistical significance of year of model of trucks was different than that of passenger cars. Table 5 provides data on the frequency of reported stolen, unrecovered trucks in 1977 in comparison to trucks in the population.

TABLE 5

Frequency Distribution of Disposition Status of Trucks
by Year Model of the Vehicles

| Disposition Status | YEAR MODEL OF TRUCKS | | |
|------------------------|----------------------|--------|--------|
| | 1975 | 1976 | 1977 |
| Not stolen | 33,310 | 43,605 | 50,420 |
| Stolen and unrecovered | 119 | 263 | 253 |

N = 127,970

χ^2 = 22.8 with 2 d.f. significant at $P < .01$

Computation by chi square analysis indicated that there is a relationship ($P < .01$) between the year model of trucks and the incidence of stolen, unrecovered trucks. Late-year model trucks

which were reported stolen and unrecovered were found to be disproportionately represented among 1976 year model trucks. Further, it was discerned that 1975 year model trucks are not stolen as frequently as expected when compared with their existence in the population. On the other hand, 1977 year model trucks were reported stolen and not recovered consistent with the expected frequency. The incidence of commercial auto theft was predominant in year model 1976 and 1977 trucks.

Manufacturer of Vehicle

Passenger Cars and Trucks

One of the research questions that was thought to be relevant to the study was: Is there a relationship between the independent variable of manufacturer and the incidence of stolen, unrecovered passenger cars and trucks? To answer this question, stolen, unrecovered passenger car and truck populations were combined and compared to the population from which the sample was drawn by the categorical variable of manufacturer.

Table 6 compares six categories of manufacturers to the stolen, unrecovered passenger car-truck population and the general population of these vehicles in Harris County. The manufacture categories are composed of General Motors, Ford Motor Company, Chrysler Corporation, American Motors, Other, and Foreign. The category of "others" is reserved for manufacturers of vehicles who are not major domestic motor vehicle producers. For example, passenger cars such as Jeep and Checker, and trucks such as Marmon

TABLE 6

Frequency Distribution of Disposition Status
by Manufacturer of Passenger Cars and Trucks

| Manufacturer | DISPOSITION STATUS | | | |
|-----------------------|--------------------|-----|--------------------------|-----|
| | Not Stolen N | % | Stolen, Unrecovered N | % |
| General Motors Corp. | 264,476 | 49 | 464 | 41 |
| Ford Motor Co. | 146,383 | 27 | 530 | 46 |
| Chrysler Corp. | 51,855 | 10 | 72 | 6 |
| American Motors Corp. | 10,519 | 2 | 11 | 1 |
| Other | 6,146 | 1 | 16 | 1 |
| Foreign | 60,702 | 11 | 50 | 5 |
| TOTAL | 540,081 | 100 | 1,143 | 100 |

N = 541,224

$\chi^2 = 239.5$ with 5 d.f. significant at $P < .01$

and White would be included in the category of "others." In comparison to the major vehicle manufacturers, these manufacturers control a very small amount of the vehicle market.

Foreign car manufacturers in Table 6 are all considered under the category of "foreign." The existence of an exceptionally large number of foreign car manufacturers made it not feasible to consider the category of manufacture for foreign passenger cars and trucks. There are approximately forty different foreign passenger car and truck manufacturers. Many of the vehicles are

not represented in the vehicle population of Harris County and the use of chi square analysis would have called for a combining of the manufacturers of foreign passenger cars and trucks in any event.

Computation by means of chi square analysis indicated that there is a relationship ($P < .01$) between the manufacturer of the vehicle and the incidence of stolen, unrecovered passenger cars and trucks as distinguished by manufacturer. It was found that while General Motors vehicles are stolen and unrecovered in a smaller proportion than their actual frequency, Ford Motor Company vehicles far exceeded the expected stolen, unrecovered vehicle rate. Chrysler Corporation vehicles were stolen and unrecovered at a lower rate than was expected. The vehicles in the manufacturer's category of "others" and "foreign" were stolen and unrecovered in lesser frequencies than would be expected.

The most positive statistically significant finding was that Ford Motor Company passenger cars and trucks, when considered in the aggregate, were stolen and unrecovered in greater frequencies than expected when compared to the general population. It is believed that this relationship is due to the less effective auto anti-theft devices of Ford Motor Company products when compared to the anti-theft devices on other vehicles produced by major domestic manufacturers. According to one source (National Institute of Law Enforcement and Criminal Justice, 1975), Ford Motor Company passenger cars and trucks are known to have steering column locks which can be defeated in a short period of time. Considering the commercial auto

thief's interest in executing the commission of the crime in the smallest amount of time necessary, this factor may be a key issue (see Appendix C for information relating to the effectiveness of manufacturer's anti-theft devices).

To further support this explanation, it is noted that Chrysler Corporation vehicles were stolen and unrecovered less frequently than the expected rate. Research by one source (Massachusetts Consumer Council, 1974) reflected that the ignition locks of Chrysler products are less effective than General Motors vehicles, but they are more effective than Ford Motor Company ignition locks. On the other hand, General Motors and American Motors vehicles, when compared to Ford and Chrysler vehicles, have ignition locks which take considerably more time to defect.

Data on the anti-theft effectiveness of ignition locks of foreign-made passenger cars and trucks were not available. It is suggested that, with the exception of very expensive foreign-made automobiles, the value of such vehicles is relatively small in comparison to domestic automobiles and trucks. Further, the commercial auto thief may not be as familiar with the types of anti-theft devices on foreign-made vehicles as he is with vehicles of domestic manufacture. Therefore, foreign-made vehicles, by virtue of their relatively low value and variety of anti-theft devices, are less prone to being stolen by commercial auto thieves.

Passenger Cars

Analysis of the independent variable of manufacturer

indicated that there was a significant relationship ($P < .01$) between the manufacturer of the passenger cars and trucks and the incidence of stolen, unrecovered vehicles. To more closely scrutinize this significance, passenger cars were analyzed separately to determine if there were significant changes in the frequency of stolen, unrecovered vehicle thefts for passenger cars as opposed to an analysis which combined passenger cars and trucks.

Table 7 indicates the frequency of stolen, unrecovered passenger cars by the variable of manufacturer in comparison to the existence of passenger cars in the population by manufacturer category. Passenger cars were placed in six categories by manufacturer of the vehicle. The category of "others" was reserved for manufacturers of domestic passenger cars which are less frequently purchased. The category of "foreign" represents all manufacturers of foreign-made automobiles.

Computation by use of the chi square formula indicated that there is a highly significant statistical relationship ($P < .01$) between the manufacturer of the passenger car and the incidence of stolen, unrecovered passenger cars. It was found that the manufacture categories of "other" and "foreign" contributed the most to the significance of the variable of manufacturer. Passenger cars in the manufacturer category of "others" contained vehicles such as Jeep and International, which are utility vehicles which are classified as passenger cars. The expected rate of the incidence of stolen, unrecovered passenger cars for the category of "others"

TABLE 7
Frequency Distribution of Disposition Status
by Manufacturer of Passenger Cars

| Manufacturer | DISPOSITION STATUS | | | |
|----------------------|--------------------|-----|--------------------------|-----|
| | Not Stolen N | % | Stolen, Unrecovered N | % |
| General Motors Corp. | 198,501 | 48 | 270 | 53 |
| Ford Motor Company | 103,234 | 25 | 127 | 25 |
| Chrysler Corp. | 42,303 | 10 | 44 | 9 |
| American Motor Corp. | 10,519 | 3 | 11 | 2 |
| Others | 2,938 | 1 | 7 | 1 |
| Foreign | 55,791 | 13 | 49 | 10 |
| TOTAL | 412,746 | 100 | 508 | 100 |

N = 413,254

$\chi^2 = 15.4$ with 5 d.f. significant at $P < .01$

was a total of three; however, seven vehicles in this category were classified as stolen and unrecovered. It is believed that the utility and off-the-road capability of these vehicles classified as passenger cars attributed to the higher frequency of stolen, unrecovered passenger cars in the category of "others," when compared to their existence in the population.

The passenger cars in the category of "foreign" contributed most significantly to the relationship between manufacturer and the incidence of stolen, unrecovered passenger cars. Foreign-made

passenger cars were reported stolen and unrecovered 28 percent less than the expected rate. It was felt that the relative value of foreign-made economy cars, when compared to domestic manufactured automobiles, had an effect on the selection of these vehicles as targets of commercial auto thieves.

Also, it was found that General Motors passenger cars were stolen and unrecovered more frequently than expected, as were Chrysler and American Motors manufactured passenger cars. However, General Motors passenger cars contributed most significantly to the incidence of unrecovered, stolen vehicles when compared to the population among the manufacturers General Motors, Chrysler Corporation, and American Motors. The General Motors passenger car population comprised 42 percent of the passenger car population. It was hypothesized that the greater prevalence of General Motors passenger cars in the population accounted for a greater proportion of stolen, unrecovered auto thefts for this manufacturer category.

Ford Motor Company passenger cars did not contribute to the significant statistical relationship between manufacturer and the incidence of stolen, unrecovered passenger cars. It was found that the expected frequency and the observed frequency of the incidence of stolen, unrecovered Ford passenger cars were identical.

Trucks

Analysis of the relationship between the independent variable of manufacturer and the incidence of stolen, unrecovered trucks was

performed to determine if significant differences existed between the type of vehicle and the manufacturer of the vehicle that was reported as an unrecovered vehicle.

Table 8 indicates the frequency of stolen, unrecovered trucks in comparison to the existence of trucks in the population from which the sample was drawn by manufacturer category. Due to the limited number of makes of domestically-produced trucks, it was possible to be more specific and trucks were analyzed according to make and manufacturer. Chevrolet and GMC makes are manufactured by General Motors. Ford models are manufactured by Ford Motor Company. Dodge model trucks are manufactured by Chrysler Corporation. The category of "others" includes truck models of domestic manufacture such as International and Jeep (AMC).

TABLE 8

Frequency Distribution of Disposition Status by Make of Trucks

| Make | DISPOSITION STATUS | | | |
|----------------|--------------------|-----|--------------------------|-----|
| | Not Stolen N | % | Stolen, Unrecovered N | % |
| Chevrolet | 53,302 | 44 | 147 | 23 |
| Ford | 43,149 | 35 | 403 | 64 |
| GMC | 12,673 | 10 | 47 | 7 |
| Dodge | 9,552 | 8 | 28 | 4 |
| Other Domestic | 3,748 | 3 | 9 | 2 |
| TOTAL | 122,424 | 100 | 634 | 100 |

$N = 123,058$

$\chi^2 = 223.2$ with 4 d.f. significant at $P < .01$

Computation by chi square analysis indicated that there is a relationship ($P < .01$) between the manufacturer of trucks and the incidence of stolen, unrecovered trucks. When analyzed separately from unrecovered, stolen passenger car sample by manufacturer, it was found that the stolen, unrecovered truck sample was very different from the passenger car stolen, unrecovered sample based upon the variable of manufacturer category.

The most significant indicator of the relationship between the make category and the incidence of stolen, unrecovered trucks was the greater frequency of Ford trucks reported stolen and unrecovered in comparison with the population. Ford trucks constituted 64 percent of the entire stolen, unrecovered truck sample; whereas, Ford trucks represented only 35 percent of the truck population studied.

Comparatively, Chevrolet, GMC, Dodge, and the category of "others" were reported as stolen, unrecovered vehicles less frequently than expected. Although Chevrolet trucks comprised 44 percent of the population from which the sample was drawn, Chevrolet trucks accounted for only 23 percent of the stolen, unrecovered truck sample.

There are two primary reasons which may account for the greater frequency of the incidence of stolen, unrecovered Ford trucks. First, according to one source (NATB Vehicle Identification Manual, 1978), Ford trucks do not have a vehicle identification number encoded on the engine or transmission. This condition facilitates the conversion of legitimate vehicle identification numbers

onto a stolen truck. The commercial auto thief does not have to be concerned with grinding away the identification numbers on the engine and transmission. All other domestic manufacturers provide vehicle identification numbers on the engine and transmission. Secondly, Ford truck ignition locks are less effective anti-theft deterrents than other manufacturer's ignition locks. These two reasons may have accounted for the greater incidence of stolen, unrecovered theft for Ford trucks.

Make of Passenger Cars

Another research question considered was: Is there a relationship between the make of passenger cars which are stolen and unrecovered when compared with the population? Analysis of such a relationship would provide greater specificity to the study. Additionally, findings which analyzed the variable of make of passenger cars could be correlated with the variable of manufacturer of stolen, unrecovered vehicles to determine consistency of the analysis.

The frequency distribution of stolen, unrecovered passenger cars by make, in comparison to the existence of passenger cars in the population from which the sample was drawn by make, is presented in Table 9. The makes of passenger cars in Table 9 represent only domestic passenger cars. Foreign passenger cars were excluded from consideration due to the multiplicity of makes of foreign passenger cars and the infrequency in which some makes of foreign cars are reported stolen and unrecovered. Further, the presence of some makes

of foreign cars in the population from which the sample was drawn was very limited or non-existent.

TABLE 9
Frequency Distribution of Disposition
Status by Make of Passenger Car

| Make | DISPOSITION STATUS | | | |
|------------|--------------------|-----|--------------------------|-----|
| | Not Stolen N | % | Stolen, Unrecovered N | % |
| Chevrolet | 87,398 | 24 | 135 | 29 |
| Oldsmobile | 39,164 | 11 | 36 | 8 |
| Buick | 31,311 | 9 | 30 | 6 |
| Pontiac | 25,397 | 8 | 47 | 10 |
| Cadillac | 15,231 | 4 | 22 | 5 |
| Ford | 73,039 | 20 | 90 | 20 |
| Mercury | 22,519 | 6 | 20 | 4 |
| Lincoln | 7,676 | 2 | 17 | 4 |
| Plymouth | 16,008 | 5 | 13 | 3 |
| Dodge | 15,423 | 4 | 19 | 4 |
| Chrysler | 10,872 | 3 | 12 | 3 |
| American | 10,519 | 3 | 11 | 2 |
| Others | 2,398 | 1 | 7 | 2 |
| TOTAL | 356,955 | 100 | 459 | 100 |

N = 357,414

$\chi^2 = 34.4$ with 12 d.f. significant at $P < .01$

Computation by the chi square analysis formula indicated that there is a relationship ($P < .01$) between the independent variable of make and the incidence of stolen, unrecovered

passenger cars when compared to the existence of passenger cars by make in the population from which the sample was drawn.

To gain a better understanding of the impact of make of passenger car on the incidence of stolen, unrecovered passenger cars, an order of rank was established. It was found that among the makes of passenger cars examined, Pontiacs, Lincolns, Others, Chevrolets, and Cadillacs were respectively the makes of automobiles that were more frequently reported as stolen, unrecovered vehicles. In contrast, it was found that Oldsmobile, Plymouth, Buick, and Mercury makes of passenger cars were reported stolen, unrecovered in a lesser frequency than expected. Dodge, Chrysler, American, and Fords respectively contributed the least to the significance of make of vehicle in relation to the incidence of stolen, unrecovered passenger cars.

It is believed that Pontiac, Lincoln, Chevrolet, Cadillac, and Others, which included Jeep and International passenger cars, are stolen and subsequently unrecovered in greater frequencies because these makes of automobiles are popular makes of cars which can be easily disposed of by resale of the entire vehicle or its parts. Lincolns, Cadillacs, and Others may be disguised and resold, while Pontiacs and Chevrolets can be sold for parts or disguised and resold. The greater existence of certain makes of vehicles in the population would naturally create a greater requirement for replacement parts. It was observed that General Motors makes of passenger cars dominated the group of passenger cars that are more frequently reported as stolen, unrecovered vehicles.

The makes of passenger cars which were reported stolen and unrecovered less frequently than expected, when compared to their existence in the population, were Oldsmobile, Plymouth, Mercury, and Buick. These makes of passenger cars represented the three major manufacturers of automobiles in the United States, which are General Motors, Ford Motor Company, and Chrysler Corporation. No explanation, other than the reasoning that the makes of Oldsmobile, Plymouth, Mercury, and Buick are limited in the variety of models and market class within each make which may affect their desirability and rapid disposition by commercial auto thieves, is given. For example, Buick offers six models of Buick passenger cars, while Chevrolet, one of the more frequently stolen and unrecovered passenger cars, offers ten models of Chevrolets for sale. Concurrently, it is believed that certain models of passenger cars contribute to the greater frequency of unrecovered stolen vehicles within the categories of make of vehicle. For instance, Oldsmobile makes of passenger cars were reported as unrecovered stolen vehicles less frequently than expected; however, it is suggested that an analysis of particular models of Oldsmobile would reveal that the Cutlass model would be reported as an unrecovered, stolen vehicle in significantly greater frequencies than the Delta 88, Omega, or Toronado.

Market Class of Passenger Cars

Another research question asked was: Is there a relationship between the market class of stolen, unrecovered passenger cars when

compared to the population from which the sample was drawn by market class? Such a question was necessary to further define the profile for stolen, unrecovered passenger cars in Harris County. The market class of the sample of stolen, unrecovered passenger cars was determined by placing each reported incident in a market class as designated for the particular automobile, on the basis of 1977 market class designations by one industry source (Automotive News, September 20, 1976). The automobiles designated as subcompacts were placed in the same category as compacts. The population from which the sample was drawn was divided into market classes on the basis of market class designation from another source (The Daily Facts Automotive Report, 1977).

Table 10 indicates the frequency distribution of stolen, unrecovered passenger cars by market class in comparison to the population. Passenger cars were divided into five categories based upon the market class designation. Compact cars represented 23 percent of the population. Intermediate-size cars represented 30 percent of the population. Standard-size passenger cars represented 40 percent of the population. Specialty cars represented 1 percent of the population. The category of "Specialty" cars contains only Corvettes. Finally, luxury cars represented 6 percent of the population.

Computation by chi square analysis indicated that there is a relationship ($P < .01$) between the market class of passenger cars and the incidence of stolen, unrecovered passenger cars. It was

TABLE 10

Frequency Distribution of Disposition Status by Market Class of Passenger Cars

| Disposition Status | Compact | Intermediate | MARKET CLASS | | |
|------------------------|---------|--------------|--------------|-----------|--------|
| | | | Standard | Specialty | Luxury |
| Not stolen | 81,558 | 105,384 | 144,283 | 2,786 | 22,977 |
| Stolen and unrecovered | 100 | 149 | 109 | 17 | 39 |

N = 357,402

 $\chi^2 = 90.5$ with 4 d.f. significant at $P < .01$

Note: Foreign cars and domestic vehicles for which a market class designation could not be assigned on the basis of model of the vehicle, were not included in the tabulation of data in this table.

found that the incidence of stolen, unrecovered passenger cars in the category of "Specialty" cars contributed the most to the statistically significant relationship. Analysis indicated that from an ordinal ranking from most frequently to least frequently stolen and subsequently unrecovered, the market class of the passenger cars was Specialty, Intermediate, Luxury, Compact, and Standard, respectively. Specialty cars make up less than 1 percent (.78) of the population from which the sample was drawn, yet they accounted for 3.3 percent of the stolen, unrecovered passenger car sample. Corvettes are a highly preferred target of commercial auto thieves because of their high value. Further, Corvettes are susceptible to severe body damage in the event of collision and the lack of repairability causes many of these vehicles to be salvaged. Procurement of available titles and vehicle identification number plates from salvaged Corvettes enables the commercial auto thief to disguise the stolen Corvette for resale at a high price. Although Corvettes are expensive, sporty passenger cars, they can be disposed of by resale rapidly if the selling price is below the current market price. Corvettes most often contain optional equipment, such as rally wheels, radio-tape deck combinations, high performance engines, et cetera, which are expensive and are components which can be stripped from the vehicle and be readily marketed.

Intermediate-sized passenger cars also contributed to the relationship between market class and the incidence of stolen, unrecovered passenger cars. It is believed that intermediates were

stolen more frequently than expected because, among the intermediate-sized passenger cars there are a variety of sporty models which are popular cars and may be resold or "chopped" for parts. Examples of such vehicles would be the Chevrolet Camaro, the Pontiac Firebird, and the Mercury Cougar. These vehicles often contain optional equipment, have a relatively high market value, and can be disposed of rapidly.

Luxury cars, such as Cadillacs and Lincolns, were found to be stolen and unrecovered more frequently than expected. It is suggested that the value of luxury vehicles combined with the high social status associated with these vehicles, accounted for the greater frequency of the incidence of stolen, unrecovered luxury cars.

Compact automobiles did not greatly contribute to the statistical relationship ($P < .01$) between market class and the incidence of stolen, unrecovered passenger cars. Compact cars accounted for 23 percent of the population, whereas, compact cars accounted for 24 percent of the stolen, unrecovered passenger population of this analysis.

Standard-size passenger cars were not reported stolen and unrecovered as frequently as expected. It was found that among the market classes of vehicles, standard-sized vehicles were stolen and unrecovered least frequently, even though these vehicles are more numerous than any other market class in the population. It is believed that standard-size cars, in most cases, do not possess the characteristics would would encourage the commercial auto thief to

steal such a vehicle. The standard-sized car does not generally have the sports profile of an intermediate-sized car, it does not have the value of a luxury car, nor does it have the economy of a compact car. The standard-sized vehicle affords anonymity to its owner, and as a result, it is not in demand and a target of the commercial auto thief.

Month of Theft

Passenger Cars and Trucks

Another research question asked in the study was: Is there a relationship between the month of theft and the incidence of stolen, unrecovered passenger cars and trucks? The consideration of seasonal variation and monthly frequency of the incidence of stolen, unrecovered passenger cars and trucks was analyzed only with respect to the sample of stolen, unrecovered vehicles. No comparisons with the general population was made in this analysis. The intent was simply to establish if there are significant variations in the monthly frequency of the incidence of stolen, unrecovered vehicles which are the subject of this study.

Table 11 indicates the frequency distribution for the combined stolen and unrecovered passenger car and truck population by month in which the vehicles were stolen. The tabulations are based upon the vehicles which were reported stolen between January 1, 1977 and December 31, 1977.

Computation by chi square analysis indicated that there is a significant relationship ($P < .01$) between the month in which the

TABLE 11

Frequency Distribution of Stolen, Unrecovered Passenger Cars and Trucks by Month Reported Stolen

| Month Stolen | Stolen, Unrecovered N | % |
|-----------------|--------------------------|-------|
| January | 68 | 5.9 |
| February | 72 | 6.3 |
| March | 74 | 6.5 |
| April | 53 | 4.6 |
| May | 54 | 4.7 |
| June | 72 | 6.3 |
| July | 93 | 8.2 |
| August | 111 | 9.7 |
| September | 128 | 11.2 |
| October | 143 | 12.5 |
| November | 135 | 11.8 |
| December | 140 | 12.3 |
| TOTAL | 1,143 | 100.0 |

$\chi^2 = 136.0$ with 11 d.f. significant at $P < .01$

passenger cars and trucks are stolen and the incidence of stolen, unrecovered vehicles. Analysis of the data suggests that there is a seasonal trend in the incidence of stolen, unrecovered passenger cars and trucks. The month in which cars and trucks were

stolen and unrecovered most frequently was the month of October. Further, it was found that the incidence of stolen, unrecovered passenger cars and trucks was most significant in the last four months of the year. Forty-seven percent of the stolen, unrecovered vehicle population was reported for the months September through December.

In contrast to the month of October, the incidence of stolen, unrecovered vehicles was least reported in the month of April. Five percent of the incidence of stolen, unrecovered vehicles was reported in May. The months of January, February, April, and May were the months in which the incidence of stolen, unrecovered vehicles were least frequently reported. Twenty-two percent of the stolen, unrecovered vehicle population was reported during these months.

The relationship between the month of theft and the incidence of reported stolen and unrecovered cars and trucks is highly significant. It was observed that there is a correspondingly high increase for the incidence of stolen passenger cars and trucks throughout the state during the months of September through December, 1977. This observation was partially supported by the monthly variation from the annual average for nationwide motor vehicle thefts as reported in one publication. One source (Crime in the United States, 1976) indicates that the incidence of motor vehicle thefts increased from the national annual average during the months of September and October, 1976. The consistent pattern in the increase of stolen, unrecovered passenger car and truck thefts

and the increase in the incidence of stolen motor vehicles in general indicated that a combination of variables affected the increased incidence of both unrecovered and recovered stolen vehicles.

One explanation which may account for the highly significant statistical relationship ($P < .01$) between month of theft and the incidence of stolen, unrecovered passenger cars and trucks is that new cars and trucks are initially introduced into the market during the months of September and October. The seasonal influx of new cars and trucks into Harris County may account for the increased incidence of stolen, unrecovered vehicles and the increase of auto-truck theft in general. Further, the introduction of new vehicles into the market in the fall may create a greater activity in the trading and selling of vehicles which could possibly provide better opportunities for the commission of commercial auto theft as used cars fill auto sales lots and activity in these establishments increased.

There may be a variety of other factors which could account for the increased rate of stolen, unrecovered passenger cars and trucks in the months of September through December. When a loss of summer employment jobs and a decrease in the general employment rate is combined with the requirement for expenditures, the incidence of commercialized frauds may increase. The commercial auto thief may resort to entering into a conspiracy with individuals who desire to make a fraudulent insurance claim. Although it would be extremely difficult to obtain evidence of commercialized fraud operations and

estimate the frequency of this type of crime, undoubtedly, many vehicles are disposed of in this manner. It is believed that this observation is particularly true when individuals are most likely to be in need of money.

Passenger Cars

The month of theft of stolen, unrecovered passenger cars was analyzed to determine if the monthly frequency of stolen, unrecovered passenger cars differed from the frequencies observed when passenger cars and trucks were combined for analysis. Further, it was the objective of this analysis to determine if there was seasonal variation in the incidence of the reporting of stolen, unrecovered passenger cars.

The incidence of reported stolen and unrecovered passenger cars is presented in Table 12. The frequency distribution and percentage of the total unrecovered passenger car thefts in the population studied was provided for each month of the calendar year.

Computation by the chi square formula indicated that there is a relationship ($P < .01$) between the month of theft and the incidence of stolen, unrecovered passenger cars. It was found that passenger cars were reported as unrecovered stolen vehicles more frequently in the months of September through December. The month in which passenger cars were stolen and subsequently unrecovered most frequently was the month of September. It was found that 12.6 percent of the stolen, unrecovered passenger cars were reported stolen in September.

TABLE 12

Frequency Distribution of Stolen, Unrecovered Passenger Cars
by Month Reported Stolen

| Month Stolen | Stolen, Unrecovered Passenger Cars | |
|-----------------|------------------------------------|-------|
| | N | % |
| January | 29 | 5.7 |
| February | 35 | 6.8 |
| March | 37 | 7.3 |
| April | 29 | 5.7 |
| May | 30 | 5.9 |
| June | 30 | 5.9 |
| July | 37 | 7.3 |
| August | 48 | 9.4 |
| September | 64 | 12.6 |
| October | 61 | 12.0 |
| November | 50 | 10.0 |
| December | 58 | 11.4 |
| TOTAL | 508 | 100.0 |

$\chi^2 = 45.4$ with 11 d.f. significant at $P < .01$

Analysis of the data suggests that there is a significant seasonal variation in the incidence of stolen, unrecovered passenger cars. Forty-six percent of the stolen, unrecovered passenger cars were reported stolen in the months of September through

December. The months of April, May, and June were found to be the months in which passenger cars were reported as stolen, unrecovered least often.

The finding that there was a significant seasonal variation in the incidence of stolen, unrecovered passenger cars suggests that the factors of a lower employment rate and the availability of a new car market in the months of September through December contributed to the seasonal variation that was observed.

Trucks

The month of theft of stolen, unrecovered trucks was analyzed to determine if the monthly frequency of stolen, unrecovered trucks differed from the monthly frequency of theft for stolen, unrecovered passenger cars. It was found that the monthly frequency of the incidence of stolen, unrecovered passenger cars varied from the analysis which combined passenger cars and trucks with respect to the month in which the vehicles were most frequently reported as stolen, unrecovered vehicles. Therefore, stolen, unrecovered trucks were analyzed separately to determine if seasonal variations were consistent.

Table 13 indicates the stolen, unrecovered trucks by the monthly frequency distribution of the thefts. Percentages of the stolen, unrecovered truck sample provide an indication of the rate of stolen, unrecovered trucks by month. It was found that 50.1 percent of the stolen, unrecovered truck sample was reported stolen in the months of September through December. November was the month in

TABLE 13
Frequency Distribution of Stolen, Unrecovered Trucks
by Month Reported Stolen

| Month Stolen | Stolen, Unrecovered Trucks N | % |
|-----------------|---------------------------------|-------|
| January | 40 | 6.3 |
| February | 37 | 5.8 |
| March | 37 | 5.8 |
| April | 25 | 3.9 |
| May | 24 | 3.8 |
| June | 42 | 6.6 |
| July | 57 | 9.0 |
| August | 55 | 8.7 |
| September | 64 | 10.1 |
| October | 84 | 13.2 |
| November | 88 | 13.9 |
| December | 82 | 12.9 |
| TOTAL | 635 | 100.0 |

$\chi^2 = 105.7$ with 11 d.f. significant at $P < .01$

which stolen, unrecovered trucks were most frequently reported. The frequency of the incidence of stolen, unrecovered trucks was least reported in the months of February, March, April, and May. During these months, only 19.4 percent of the stolen, unrecovered truck sample was reported stolen.

Computation by use of the chi square formula indicated that there is a relationship ($P < .01$) between the month of theft and the reported incidence of stolen, unrecovered trucks. It is believed that the factors of lower employment and the increased availability of these vehicles as a result of the new truck market affected the incidence of increased theft of trucks which were not recovered. It is believed that the factors which affected the increased incidence of stolen, unrecovered trucks also affected the increased incidence of stolen, unrecovered passenger cars during the months of September through December. There was a well-established pattern regarding the month of theft for stolen, unrecovered passenger cars and trucks. The factors which exist to establish this pattern are common elements which result in the increased incidence of commercial auto theft regardless of the type of vehicle which was stolen.

CHAPTER V

CONCLUSIONS

After evaluation of the data and analysis presented in Chapter IV, this final chapter is devoted to summarizing the findings of this study. Analysis of the data led to a descriptive profile of the vehicles preferentially selected for theft by commercial auto thieves. The probable factors which contributed to the greater frequency of theft, and subsequent unrecovered status of certain vehicles, was explained in relation to each of the independent variables examined. The most influential factors offered as possible explanations which affected the relationship between the independent and dependent variables were summarized in this chapter. Last, recommendations for further research and actions to reduce the incidence of commercial auto theft are proposed.

Findings

The first independent variable that was analyzed was type of vehicle. Analysis of the comparison between type of vehicle and the incidence of unrecovered, stolen vehicles revealed that there was a significant relationship ($P < .01$) between these variables. Trucks were reported as unrecovered, stolen vehicles in greater frequencies than were passenger cars.

It is noteworthy that among the late model vehicles studied, trucks were found to be reported as unrecovered, stolen vehicles

with greater frequency than passenger cars, regardless of their proportional existence in the population. This condition will probably continue in view of the present popularity of trucks in this region of the country.

The second independent variable that was analyzed was year model of vehicle. Analysis of the comparisons between year model of the vehicle and the incidence of unrecovered, stolen vehicles revealed that there was a significant relationship ($P < .01$) between these variables. Year model 1976 passenger cars and trucks were found to be reported as unrecovered, stolen vehicles more frequently than 1975 or 1977 vehicles.

It appears that there are two factors which were operant in this finding. Of the three year models of vehicles studied, 1976 year model vehicles were the most likely vehicles to retain a relatively high dollar value and be sufficiently available in the population for exposure to the commercial auto thief. These conditions should hold constant; therefore, among late model vehicles, the year model most susceptible to commercial auto theft would be the median year model vehicle of the last three calendar years the vehicles were produced.

The third independent variable analyzed was manufacturer of the vehicle. Analysis of the comparisons between year model of the vehicle and the incidence of unrecovered, stolen vehicles revealed that there was a significant relationship ($P < .01$) between these variables. However, the data were not consistent between passenger cars and trucks. General Motors passenger cars were reported as

unrecovered, stolen vehicles more frequently than passenger cars of other manufacturers.

The difference in findings when the variable of manufacturer was compared to type of vehicle was probably attributable to two unrelated factors. General Motors passenger cars were probably reported as unrecovered, stolen vehicles more frequently than vehicles of other manufacturers because General Motors produced a wider selection of makes of passenger cars which vary in market class. Ford trucks were probably reported as unrecovered, stolen vehicles more frequently because Ford trucks do not have vehicle identification numbers stamped on engines and transmissions. This circumstance has made the identification of stolen Ford trucks or their components more difficult. The greater range of makes of vehicles available from a particular manufacturer appears to enhance the economic desirability of vehicles. Thus, there is a greater demand for these vehicles and their component parts. A greater public demand for vehicles produced by a certain manufacturer and the quality of manufacturer anti-theft devices are believed to have affected the relationship between these two variables.

The fourth independent variable analyzed was make of vehicle. Analysis of comparisons between the make of vehicle and the incidence of unrecovered, stolen vehicles revealed that there was a significant relationship ($P < .01$) between these variables. Passenger cars in the make categories of Pontiac, Lincoln, Others, and Chevrolet were reported respectively as unrecovered, stolen

vehicles more frequently than different makes of vehicles studied. The finding that Pontiac and Chevrolet makes of passenger cars are reported as unrecovered, stolen vehicles more frequently is probably attributable to the variety of sports-car type models of passenger cars of these makes. Pontiac make vehicles included such highly desirable models as the Firebird, GTO, Grand Prix, and Lemans. Chevrolet make vehicles included models such as the Camaro, Corvette, Monte Carlo, and Impala. These models of passenger cars often have interchangeable parts which are in demand and contain a variety of optional equipment. Lincolns were probably reported as unrecovered, stolen passenger cars in greater frequencies than expected based upon their existence in the population because of the high value and resale potential of these vehicles. The category of "others" included makes of vehicles such as Jeeps and Internationals. These vehicles are probably stolen and subsequently unrecovered more frequently because they have a greater load-hauling and off-the-road capability.

The fifth independent variable analyzed was market class. Evaluation of the comparisons between market class and the incidence of unrecovered, stolen vehicles revealed that there was a significant relationship between these variables. The market class category of "Specialty" applied to only one model of domestic passenger cars, and that was Corvette. Corvettes were reported as unrecovered, stolen vehicles in significantly greater frequencies than vehicles of other market classes. This finding is probably

explained by the fact that a Corvette is an expensive sports car that has a high resale potential.

The last independent variable analyzed was month of theft. Analysis of comparisons between the month of theft and the incidence of unrecovered, stolen vehicles revealed that there was a significant relationship ($P < .01$) between these variables. Both passenger cars and trucks were found to be reported as unrecovered, stolen vehicles significantly more frequently during the months of September through December. This finding was difficult to explain. The increased incidence of the theft of vehicles which were not recovered in the months of September through December was probably attributable to the introduction of the new car market during these months. Further research is needed to define variables which contributed to the seasonal variation of auto theft in this study.

Profile of an Unrecovered, Stolen Passenger Car

In developing a profile of the passenger car most likely to have been subject to commercial auto theft, the independent variables of year model, manufacturer, model, and market class were evaluated. The evaluation revealed that the unrecovered, stolen passenger car would most likely have been a 1976 year model vehicle of General Motors manufacture. More specifically, the vehicle would have been a Pontiac or Chevrolet of an intermediate size.

Profile of an Unrecovered, Stolen Truck

It has been concluded that at the present, truck thefts are the most significant commercial auto theft problem in Harris County. Among 1975, 1976, and 1977 model passenger cars and trucks which were reported as unrecovered, stolen vehicles, trucks accounted for 56 percent of the total sample.

In developing a profile of the truck most likely to have been the subject of commercial auto theft, the variables of year model, make, and style of vehicle were evaluated. The analysis of data on commercial truck thefts revealed that Ford trucks represented 63 percent of the unrecovered, stolen trucks in the sample. Seventy-one percent of the unrecovered, stolen trucks were pickup trucks, while the remainder of the trucks were of other styles; for example, stakebed, flatbed, or van trucks. It is further suggested that pickup trucks, such as the Ford XLT and Chevrolet Silverado, which are expensive styles of trucks with a variety of optional equipment, are prime targets of commercial truck thieves. Evaluation of the data indicated that an unrecovered, stolen truck most likely would have been a 1976 Ford truck with a pickup truck style.

Recommendations

There are a number of areas in which further research would enhance the knowledge of patterns in commercial auto theft. Variables which pertain solely to vehicle characteristics, such as

style of vehicle or color of vehicle could be studied to increase the specificity of the profile for unrecovered stolen vehicles. Variables such as specific location of theft and time of theft could be analyzed to assist law enforcement officials in designing operations which concentrate on the auto theft problem. Correlation of the variables of location and time of theft would provide information on the patterns employed by commercial auto thieves. Research should be conducted to examine offender characteristics of the commercial auto thief. Knowledge pertaining to the commercial auto thief is extremely limited. Studies which correlate offense and offender characteristics should be initiated.

Preliminary evaluation of data revealed that motorcycle and heavy equipment thefts are also a significant law enforcement problem. Further examination of the theft of these types of vehicles should be conducted to develop a comprehensive understanding of the auto theft problem within a jurisdiction.

There is an argument that auto theft victims often precipitate the auto theft. Many auto thefts are attributed to motor vehicle operator carelessness in parking and securing the automobile. Further research in this area could be used to provide the public with information concerning potential auto theft risks.

Commercial auto theft as a conspiracy to make fraudulent insurance claims should be examined. This variation of commercial auto theft is a highly complex crime which involves elements of theft, fraud, and conspiracy. The true extent of this type of

commercial auto theft is unknown.

The sophistication and organization employed by commercial auto theft rings is a variable which must be recognized to improve investigative effectiveness. In order to successfully cope with commercial auto thieves, law enforcement officials must be familiar with the patterns and tactics used by these professional thieves.

The initial indication that commercial auto thieves are operating in an area should be a notable decrease in the recovery rate of stolen vehicles. This condition should alert law enforcement officials as to the nature of a specific auto theft problem. Yet, further information needs to be correlated to provide specific data on location and time of theft, and a profile of the vehicles being stolen. Consolidation of such information could be used to develop a proactive response to commercial auto theft; however, the consolidation of information which can be used to adopt responsive planning is lacking.

At the present, the Texas Crime Information Center (TCIC) does not record specific information on location of theft or time of theft. It would enhance planning if these variables were available on computer records. The location of theft could be coded to indicate a general location; for example, residence, public parking area, paid parking area, et cetera. Time of theft could be added to the date of theft entry.

It is recommended that a centralized audit system be established in the state police headquarters. Information to detect

and define the extent of commercial auto theft could be developed by computer programming, and analysis could be disseminated in the form of police intelligence reports to local police agencies. Assessment of the commercial auto theft problem on a statewide basis may provide a better understanding of the eventual disposition of unrecovered, stolen vehicles. Specifically, in Texas, the shared border with Mexico and the existence of several seaports, make it imperative that actions be initiated to investigate the extent of shipment of stolen motor vehicles to foreign countries for resale. Under the existing situation, investigation of commercial auto theft begins when parts of stolen vehicles or a disguised stolen vehicle are recovered. A planned police response would enable police to investigate commercial auto theft proactively.

Statistical studies should be initiated at the local police agency level to ascertain the theft potential for particular motor vehicles. The information derived from such efforts should be disseminated to the public. If those individuals who own motor vehicles which have a higher commercial theft potential are aware of their differing susceptibility to the crime of auto theft, they may exhibit a greater security awareness.

FOOTNOTES

FOOTNOTES

¹During a telephone conversation on March 30, 1978, Mr. Charley Evans suggested that the significant variations in the type of vehicles which have been reported as unrecovered, stolen vehicles in this state are probably attributable to the public preference for trucks in this geographical area. Mr. Evans related that variations in the type of vehicles being stolen is a product of the popularity of certain vehicles in different regions of the country.

²Inciardi, in his book, Careers in Crime (1975) noted that until recently, auto theft and auto stripping undertaken by professional criminals were transitory operations. He further observed that contemporary reports suggest that such thefts are now being undertaken on a regular basis with highly organized and efficient planning.

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APPENDIX A

Interview with an Investigator in the Texas
Department of Public Safety,
Motor Vehicle Theft Services Division

APPENDIX A

On February 14, 1978, an interview was conducted with Sergeant Claude Hart of the Motor Vehicle Theft Services Division of the Texas Department of Public Safety. The following is a record of his observations of the patterns of commercial auto theft in the state of Texas.

In 1977, throughout the state of Texas, 34,322 passenger cars were reported as stolen vehicles. Concurrently, 9,477 pickup trucks were reported as stolen vehicles. Approximately 70 percent of the motor vehicles reported as stolen in Texas are eventually recovered.

It was suggested that many of the stolen vehicles were transported to Mexico and other foreign countries. However, it was noted that since many vehicles are not recovered, it is virtually impossible to ascertain, with any accuracy, the disposition of unrecovered stolen vehicles. It was pointed out that unrecovered, stolen vehicles are generally disposed of in the following three ways: (1) the vehicle is dismantled and the parts are sold; (2) the vehicle may be sold in Mexico without any attempts to change the identity of the vehicle; or (3) the vehicle may be disguised by means of changing the vehicle identification numbers and spurious documentation obtained to facilitate sale of the vehicle in Texas or any other state. All three methods of disposal of stolen vehicles pose significant investigative problems for law enforcement officials.

In Texas, unlike many other states, truck thefts are a

significant auto theft problem. Specifically, pickup trucks are a preferred target of commercial auto thieves. Sergeant Hart believed that preferred stolen vehicles which are shipped out of this country include pickups, heavy equipment, four-wheel drive vehicles, and luxury passenger cars. Generally, vehicles are stolen in proportion to their existence in the population. Commercial auto thieves usually steal those vehicles which are in popular demand.

APPENDIX B

Interview with the Assistant Manager
of the Southwestern Division
National Auto Theft Bureau

APPENDIX B

On February 28, 1978, an interview was conducted with Mr. Charley Evans, Assistant Manager, Southwestern Division of the National Auto Theft Bureau. The purpose of the interview was to obtain further information related to patterns of commercial auto theft. The following is a record of Mr. Evans' observations on commercial auto theft.

The observation was made that auto theft affects all citizens from the standpoint of increased insurance rates. Mr. Evans estimated that the average cost to an insurance company is approximately \$600 when a motor vehicle is stolen, even if the vehicle is subsequently recovered. The existence of auto theft rings results in an increase in the rate of auto theft in the particular area.

Two distinct trends in auto-truck theft were observed to be emerging. The increased price of automobile parts has led to a greater requirement for parts. Mr. Evans noted that, in many cases, auto repair and body shops had become "parts-changes," replacing damaged parts with parts which have been acquired from vehicles which have been stolen and stripped. The vast majority of these vehicles are unrecoverable. Also, there is an increase in the incidence of truck thefts.

Mr. Evans believed that as a general rule, whatever type of vehicle that has a high sales potential in a particular geographical area, is most likely to be reported as stolen and

unrecovered more frequently than other types of vehicles.

The intended disposition of the passenger car or truck is a factor for the commercial auto thief. Vehicles of a particular manufacture and model are stolen based upon the potential of the vehicle to be readily sold to an intended party.

Anti-theft devices installed by manufacturers are ineffective, as most commercial auto thieves are familiar with the devices, and can defeat the locks with relative ease. However, automobile anti-theft devices designed and installed by individual automobile owners do represent an effective anti-theft device.

APPENDIX C

The Effectiveness of Automobile Anti-Theft Devices

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AN ANALYSIS OF LATE-MODEL COMMERICAL AUTO-TRUCK THEFT IN HARRIS--ETC(U)
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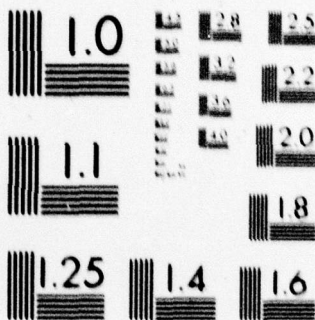
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MICROCOPY RESOLUTION TEST CHART
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APPENDIX C

Minimum Time Required for Ignition Lock Removal

| Manufacturer | Minimum Lock Removal Time |
|-----------------|---------------------------|
| Ford | 10 seconds |
| Chrysler | 30 seconds |
| General Motors* | 120 seconds |

*The locks on AMC cars have substantially the same characteristics as the locks on GM cars.

Source: Massachusetts Consumer Council. Report on the Causes and Prevention of Auto Theft. October, 1974, as extracted from Preliminary Study of the Effectiveness of Auto Anti-Theft Devices, October, 1975, prepared by the National Institute of Law Enforcement and Criminal Justice.

APPENDIX D

**FBI Motor Vehicle Theft Survey--
Data on Type, Year Model, and
Manufacturer of Stolen Vehicles**

APPENDIX D

TABLE 1
Motor Vehicle Theft by Type of Vehicle

| Type of Vehicle | N | Percentage of Thefts |
|-----------------|---------|----------------------|
| Passenger Cars | 117,279 | 85 |
| Trucks | 8,278 | 06 |
| Motorcycles | 11,038 | 08 |
| Other Vehicles | 1,380 | 01 |
| TOTAL | 137,975 | 100 |

Source: "Motor Vehicle Thefts--A Uniform Crime Reporting Survey,"
FBI Law Enforcement Bulletin, 44:8, 1975.

APPENDIX D--Continued

TABLE 2

Motor Vehicle Thefts by Year Model of Vehicle

| Year Model | N | Percentage of Thefts |
|----------------|---------|-------------------------|
| 1968 and older | 68,988 | 50 |
| 1969 to 1971 | 27,595 | 20 |
| 1972 or newer | 41,392 | 30 |
| TOTAL | 137,975 | 100 |

Source: "Motor Vehicle Thefts--A Uniform Crime Reporting Survey,"
FBI Law Enforcement Bulletin, 44:8, 1975.

APPENDIX D--Continued

TABLE 3
Passenger Car Thefts by Manufacturer Category of Vehicles

| Manufacturer | N | Percentage of Thefts |
|---------------------------------|---------|-------------------------|
| General Motors Corp. | 58,203 | 50 |
| Ford Motor Co. | 29,103 | 25 |
| Chrysler Corp. | 11,641 | 10 |
| American Motors Corp. | 2,328 | 02 |
| Other Domestic Manufacturers | 2,329 | 02 |
| Foreign Car Manufacturers | 12,805 | 11 |
| TOTAL | 116,409 | 100 |

Source: "Motor Vehicle Thefts--A Uniform Crime Reporting Survey,"
FBI Law Enforcement Bulletin, 44:8, 1975.

VITA

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